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Amendment under 37 CFR § 1.116
Application No. 10/501,813
Attorney Docket No. 042393

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions of claims in the application.

1. (Original) A method for forming a high-Re-content alloy film which contains Re at 98 % or more by atomic composition, said method comprising performing an electroplating process using an electroplating bath which contains an aqueous solution including:

a perrhenate ion in a concentration of 0.1 to 8.0 mol/L;

at least one ion selected from the group consisting of nickel, iron, cobalt and chromium (III) ions, in a total concentration of 0.005 to 2.0 mol/L;

at least one of a Li ion and a Na ion, in a total concentration of 0.0001 to 5.0 mol/L; and

at least one organic acid selected from the group consisting of carboxylic acid, hydroxycarboxylic acid and amino acid, in a concentration of greater than 5.0 to 15.0 equivalents to the concentration of all of said metal ions,

wherein said electroplating bath has a pH of 0 to 8, and a temperature of 10 to 80°C.

2. (Original) The method as defined in claim 1, wherein said alloy film to be formed has a composition consisting of 98% or more, by atomic composition, of Re, with the remainder

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being at least one selected from the group consisting of Ni, Co, Fe, Mn, Cr, Mo, W, Nb, Ta, Hf, Si, Al, Ti, Mg, Pt, Ir, Rh, Au, Ag, P, B, C, Y and Ce, and inevitable impurities.

3. (Currently amended) A method for forming a high-Re-content alloy film, said method comprising performing an electroplating process using an electroplating bath which contains an aqueous solution including:

a perrhenate ion in a concentration of 0.1 to 8.0 mol/L;

at least one ion selected from the group consisting of nickel, iron and cobalt ions, in a total concentration of 0.005 to 2.0 mol/L;

a Cr (III) ion in a concentration of 0.1 to 4.0 mol/L; and

~~at least one of a lithium ion and a sodium ion~~, in a ~~total~~ concentration of 0.0001 to 5.0 mol/L,

wherein said electroplating bath has a pH of 0 to 8, and a temperature of 10 to 80°C, and

wherein the high-Re-content alloy film consists of Re in the range of 65 to less than 98% by atomic composition and the remainder being at least one of Ni, Fe and Co.

4. (Cancelled)

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5. (Previously presented) The method as defined in claim 3, wherein said electroplating bath contains an organic acid in a concentration of 0.1 to 5.0 equivalents to the concentration of all of said metal ions.

6. (Previously presented) The method as defined in either one of claims 1 to 3, wherein said aqueous solution further includes at least one ion selected from the group consisting of potassium, rubidium, cesium, calcium, strontium and barium ions, wherein the total concentration of said at least one of lithium ion and sodium ion in said electroplating bath is greater than the total concentration of said at least one ion selected from the group consisting of potassium, rubidium, cesium, calcium, strontium and barium ions.

7. (Previously presented) The method as defined in either one of claims 1 to 3, wherein said aqueous solution further includes a sulfate ion in a concentration of 0.0001 to 5.0 mol/L, and a chloride ion in a concentration of 0.0001 to 5.0 mol/L.